106

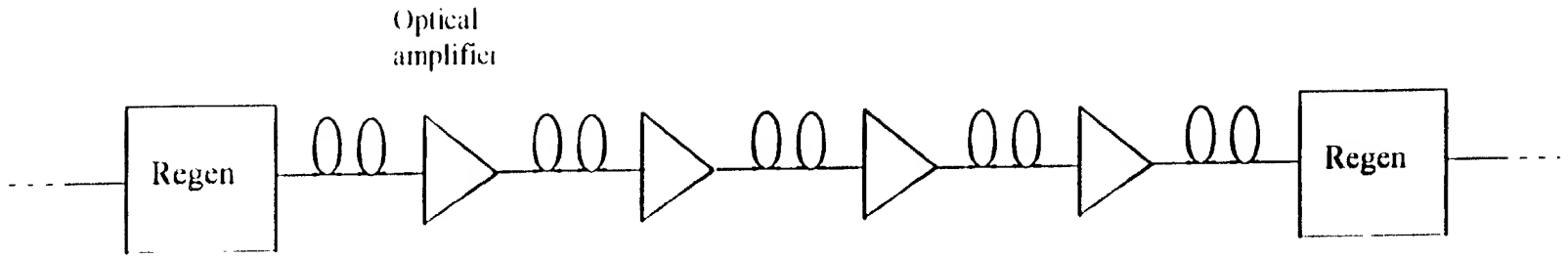


Fig. 1.

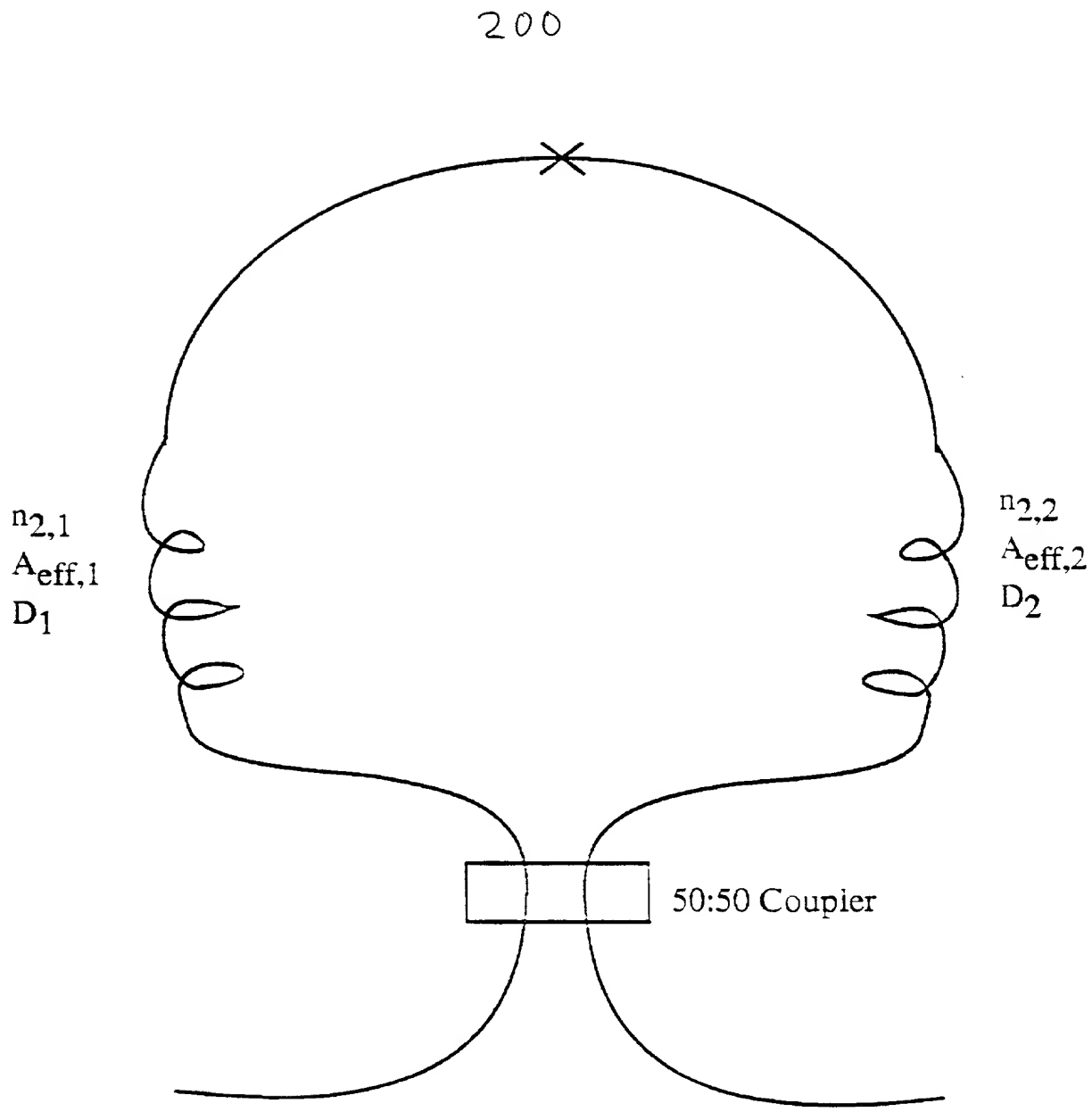


Fig. 2.

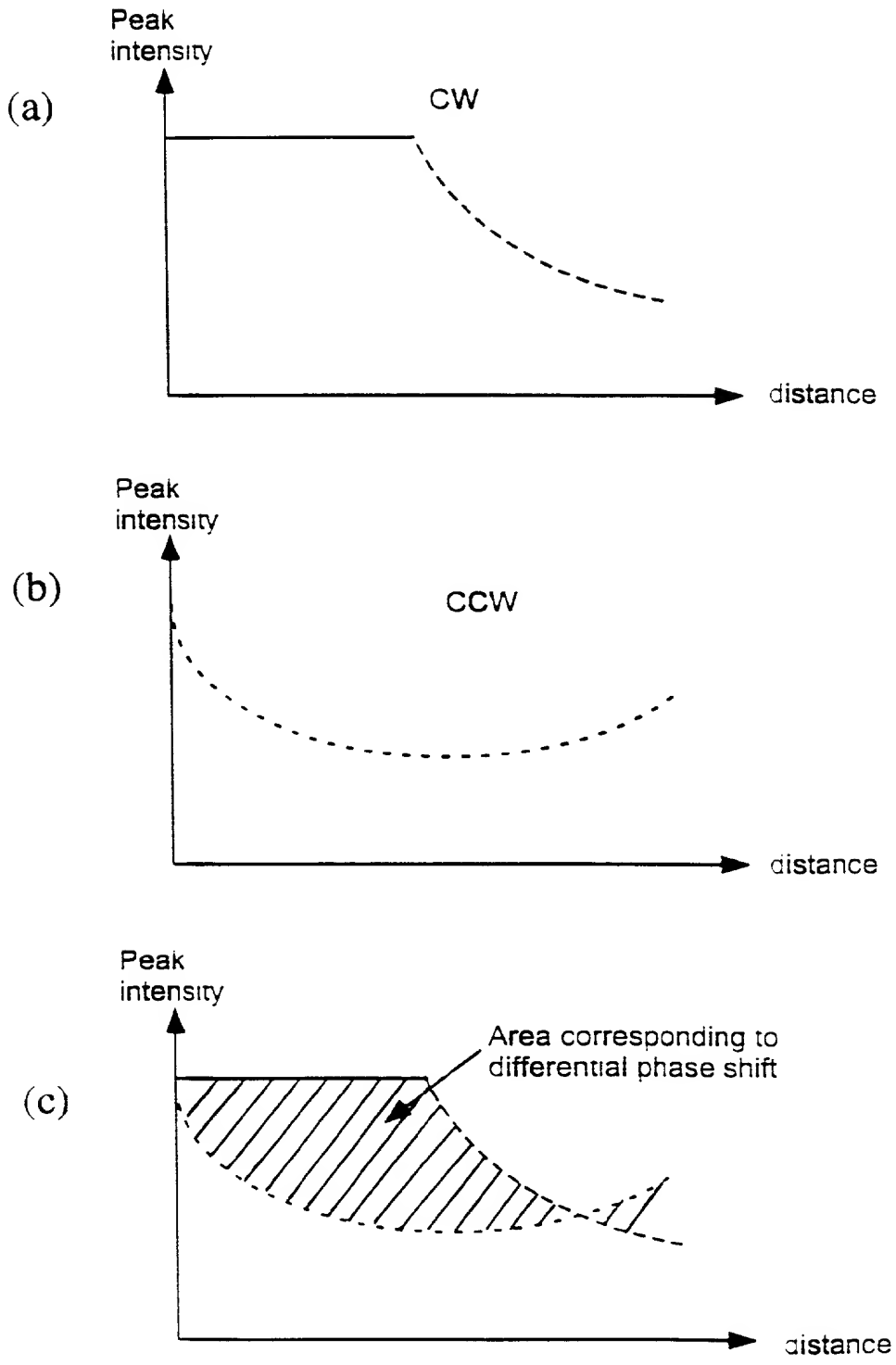

Peak intensity
(a)
CW
distance
Peak intensity
(b)
CCW
distance
Peak intensity
(c)
Area corresponding to differential phase shift
distance

Fig. 3

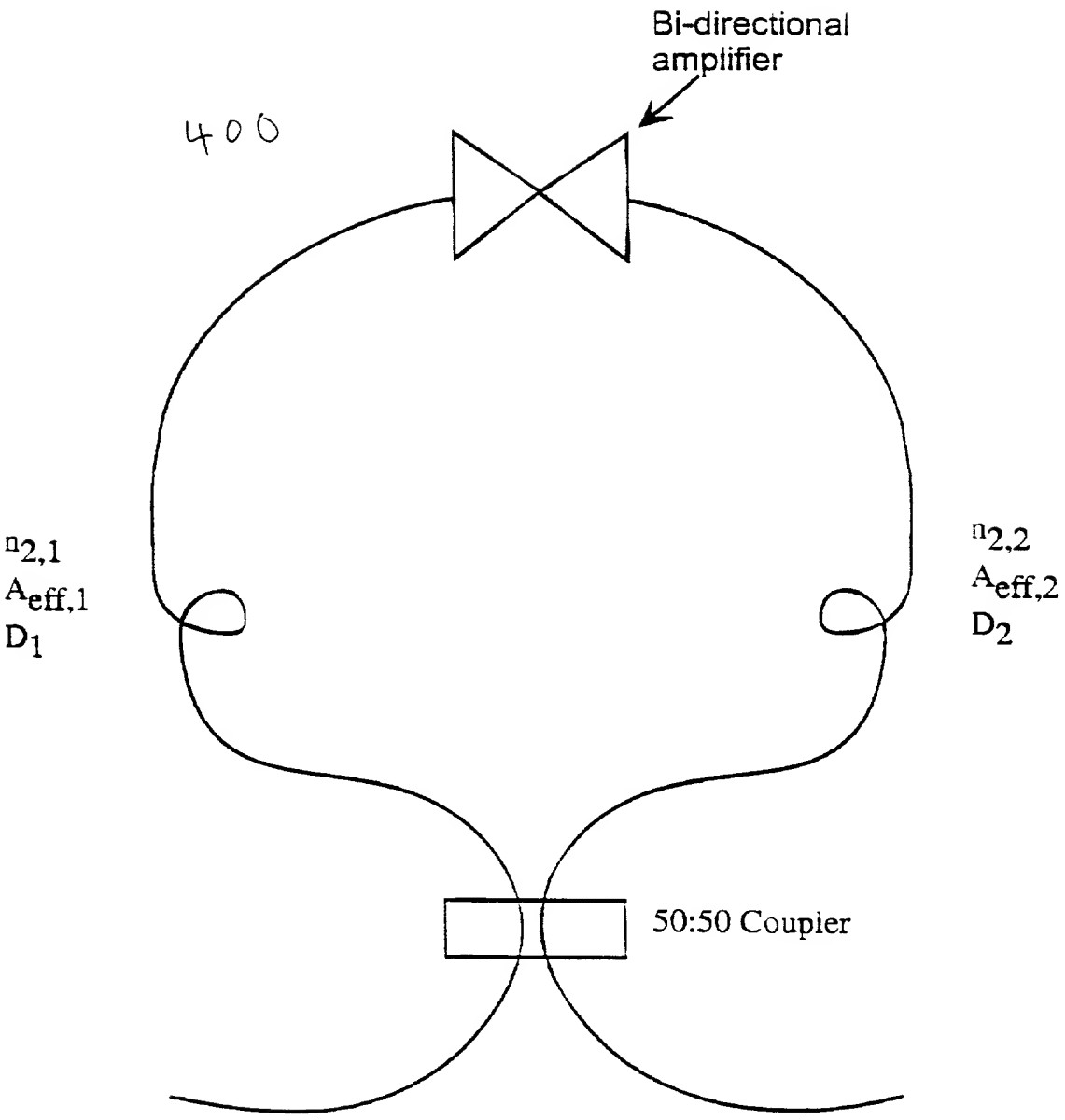

Bi-directional amplifier
400
$n_{2,1}$
$A_{eff,1}$
D_1
$n_{2,2}$
$A_{eff,2}$
D_2
50:50 Coupler

Fig. 4.

500

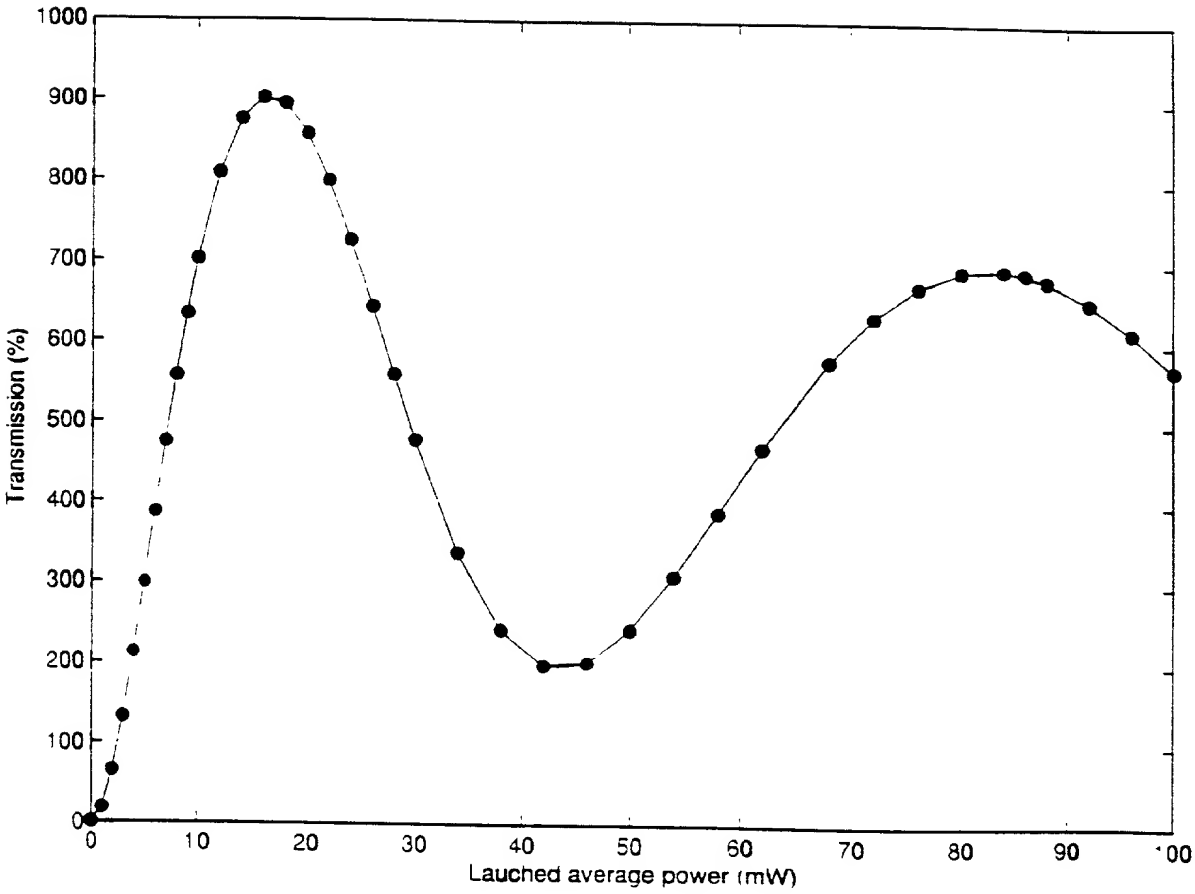

Transmission (%)
Lauched average power (mW)
0
100
200
300
400
500
600
700
800
900
1000
0
10
20
30
40
50
60
70
80
90
100

Fig. 5.

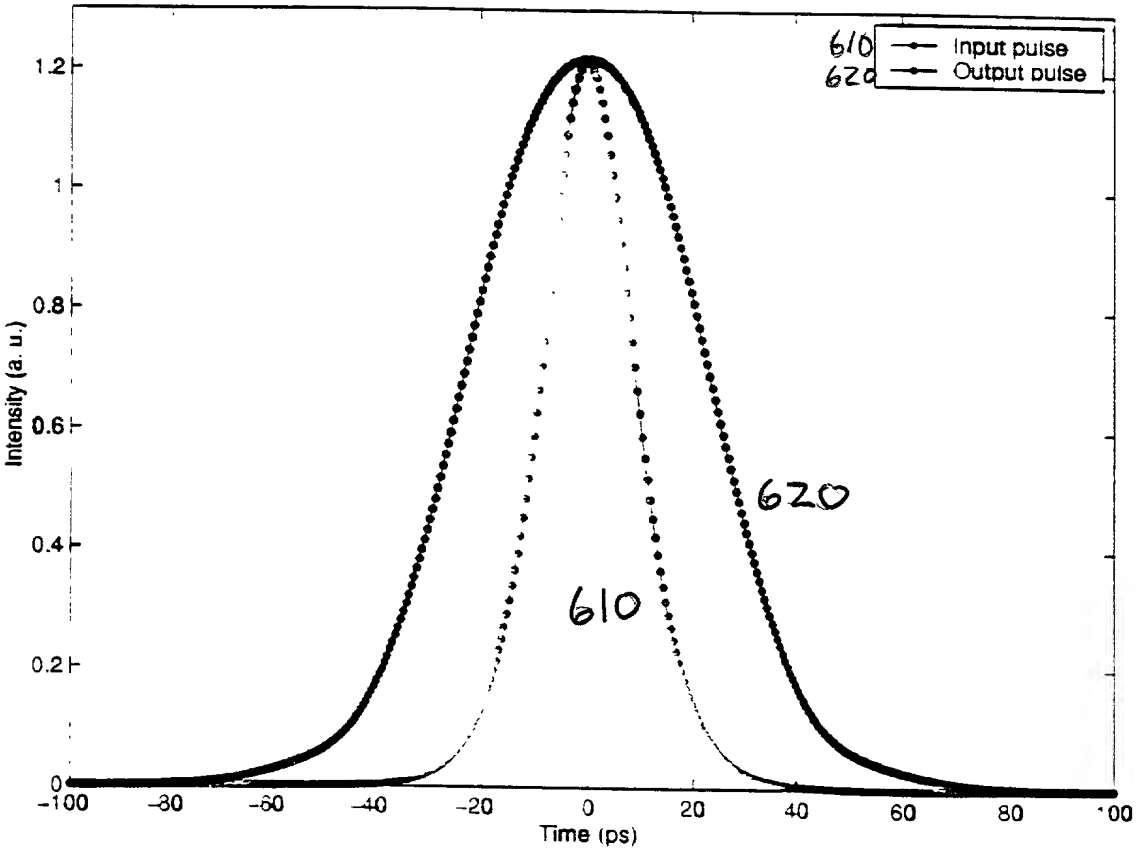

610
620
Input pulse
Output pulse
Intensity (a. u.)
Time (ps)
620
610

Fig. 6(a)

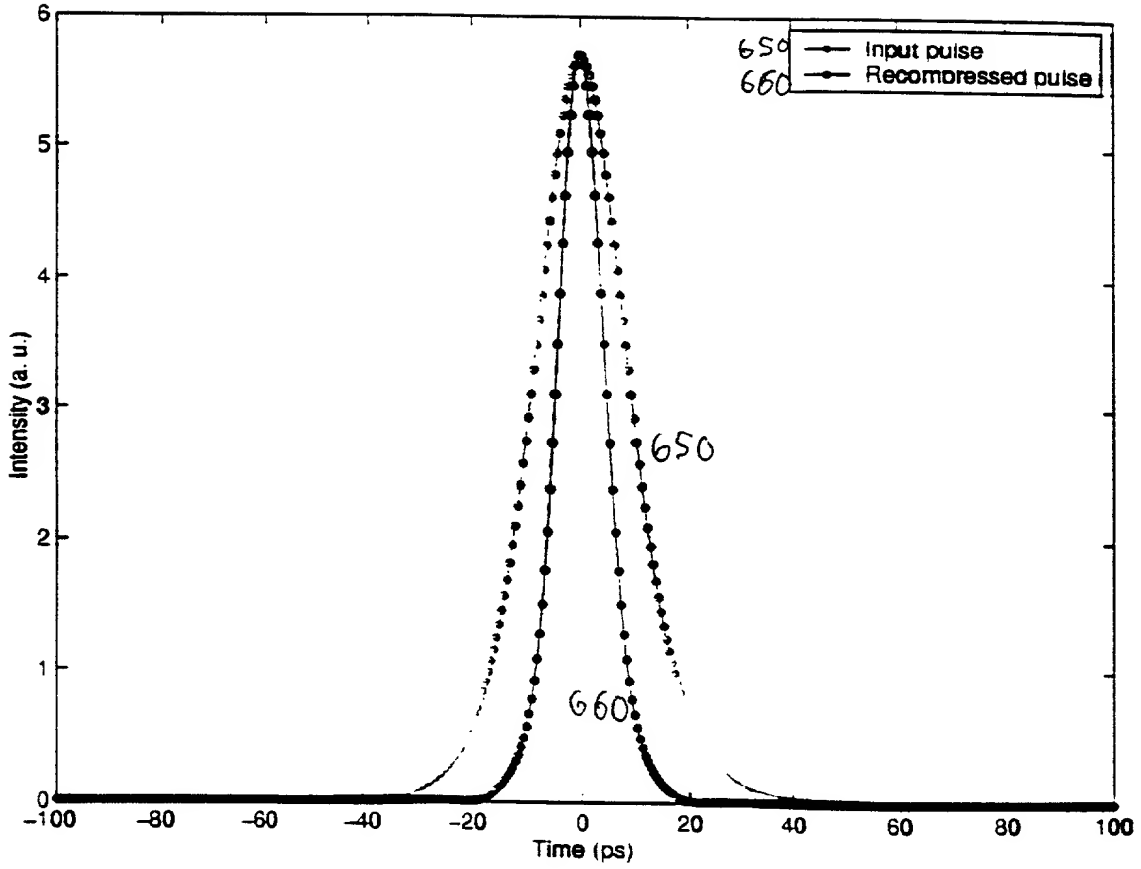

Input pulse
Recompressed pulse
650
660
Intensity (a. u.)
Time (ps)
0
1
2
3
4
5
6
-100
-80
-60
-40
-20
0
20
40
60
80
100

Fig. 6(b)

700

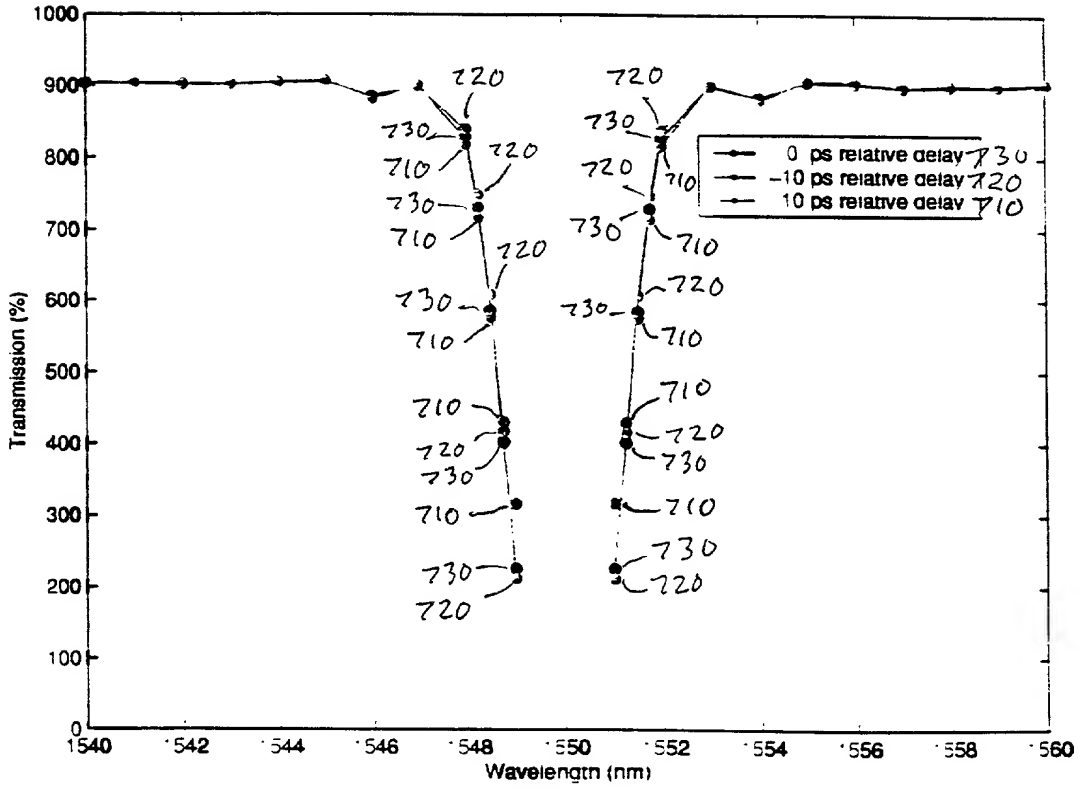

1000
900
800
700
600
500
400
300
200
100
0
Transmission (%)
1540
542
544
546
548
550
552
554
556
558
560
Wavelength (nm)
0 ps relative delay
-10 ps relative delay
10 ps relative delay
720
730
710

Fig. 7

800

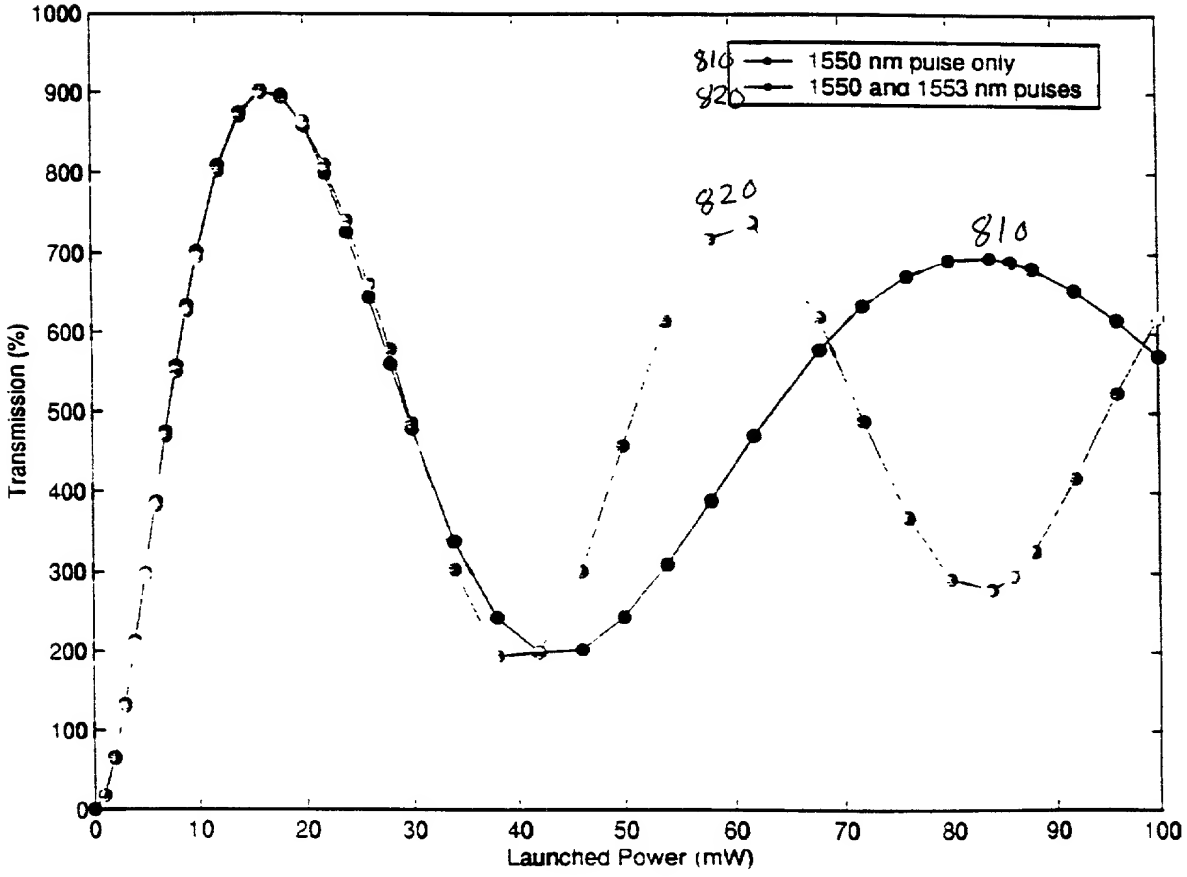

1550 nm pulse only
1550 and 1553 nm pulses
820
810
Transmission (%)
Launched Power (mW)
0
100
200
300
400
500
600
700
800
900
1000
0
10
20
30
40
50
60
70
80
90
100

Fig. 8

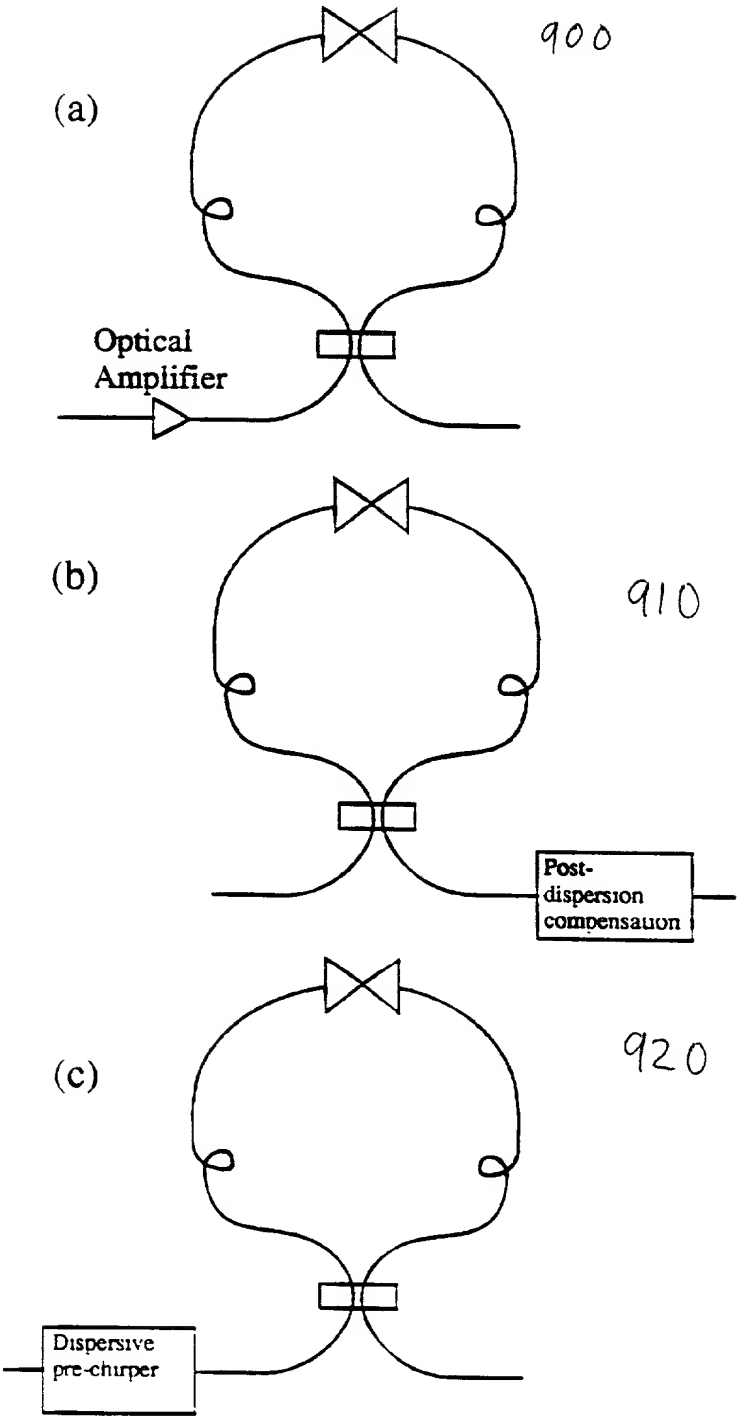

900
(a)
Optical
Amplifier
(b)
910
Post-
dispersion
compensation
(c)
920
Dispersive
pre-chirper

Fig. 9

1000

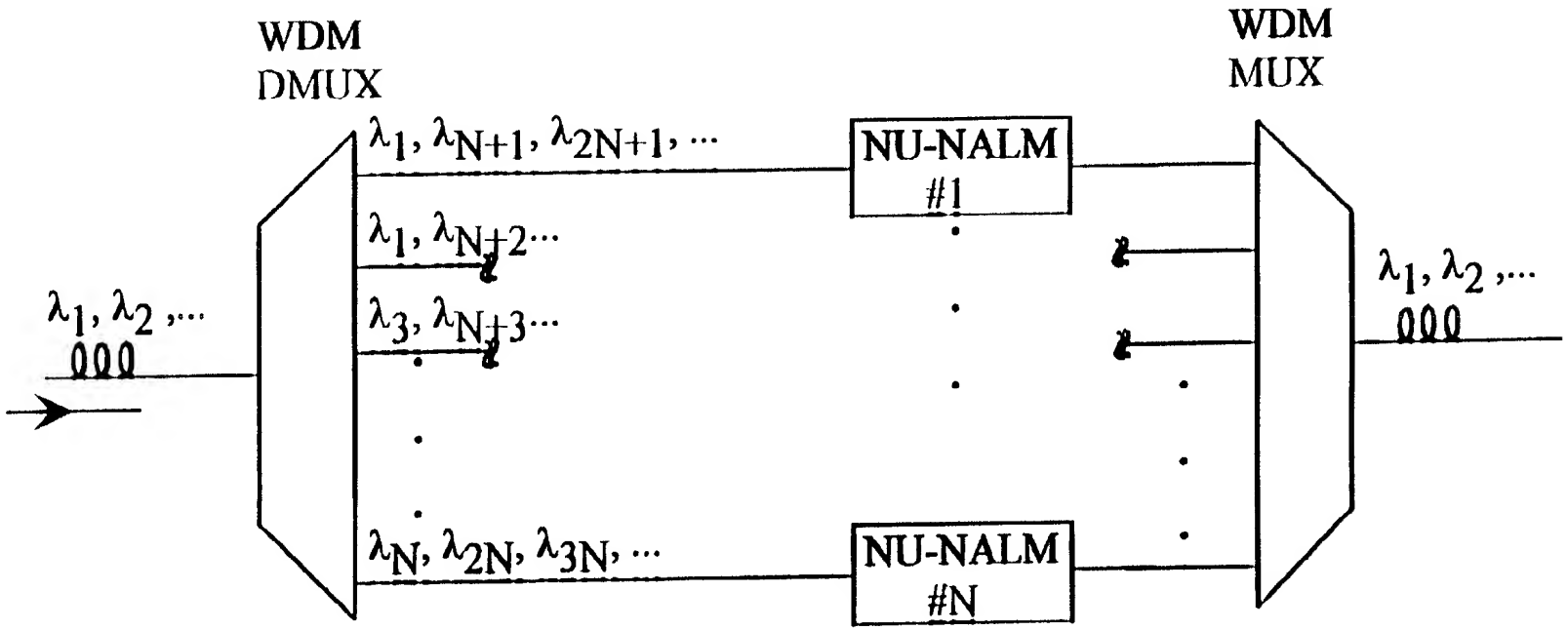


Fig 10.

1100

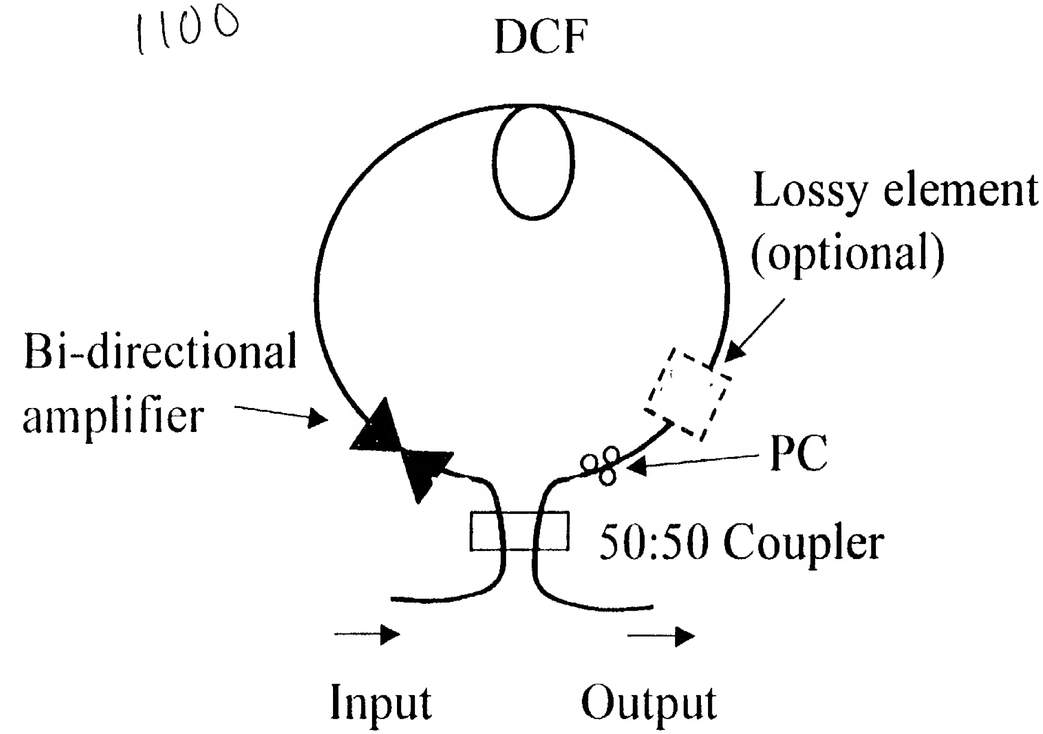

DCF
Lossy element
(optional)
Bi-directional
amplifier
PC
50:50 Coupler
Input
Output

Fig. 11

1200

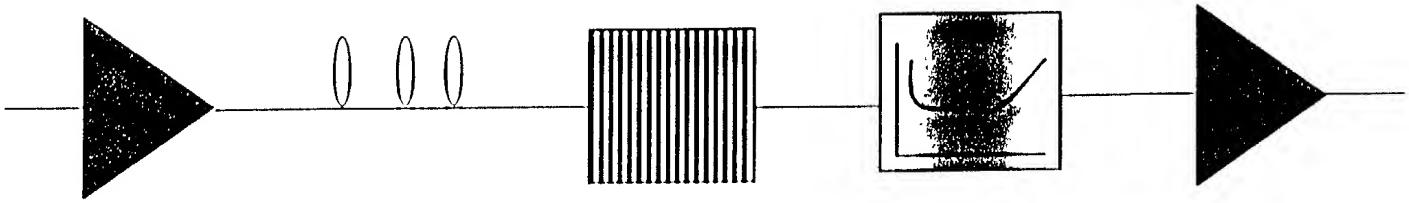


Fig. 12

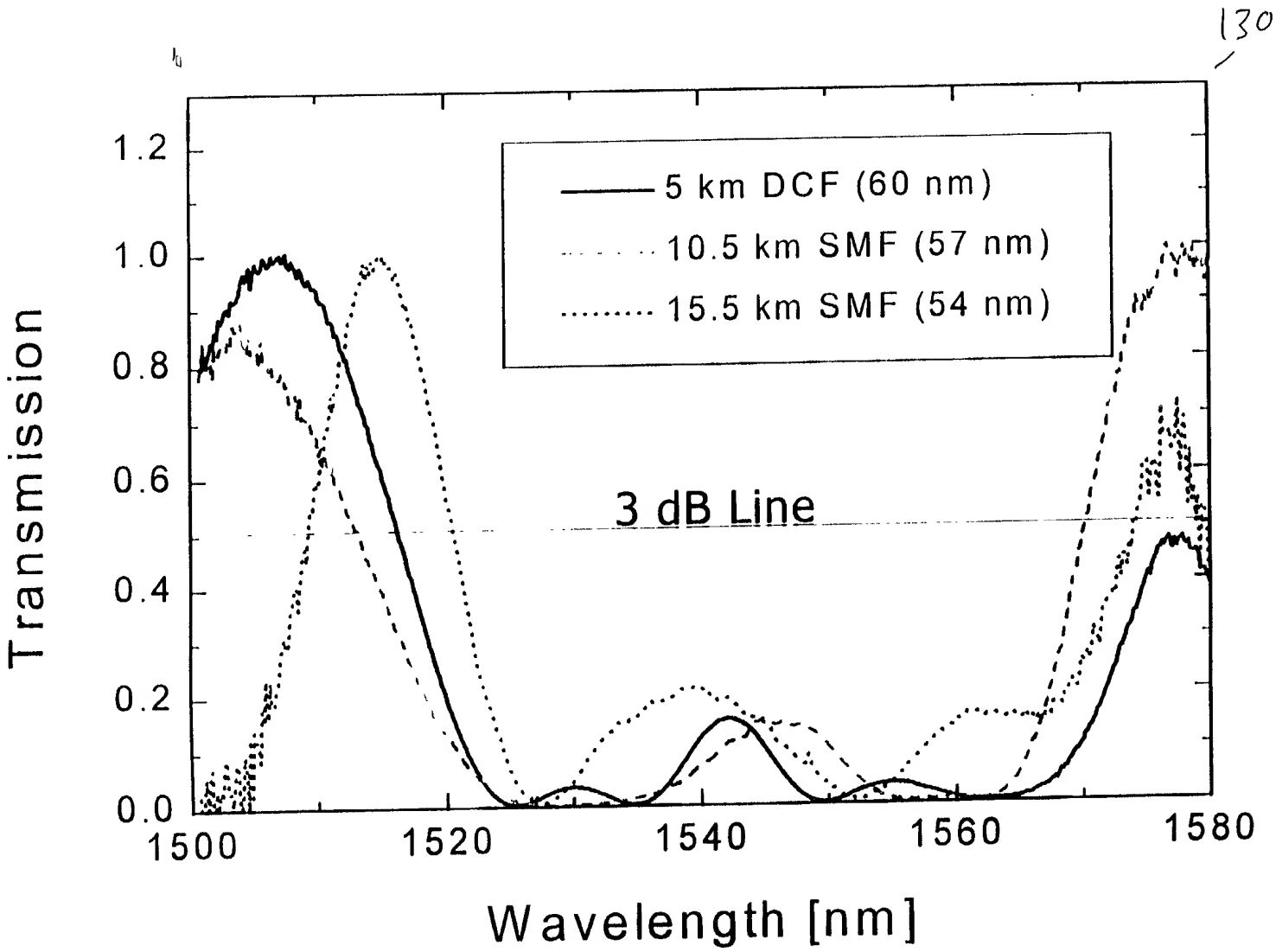


Fig. 13

Fig. 14-(a)

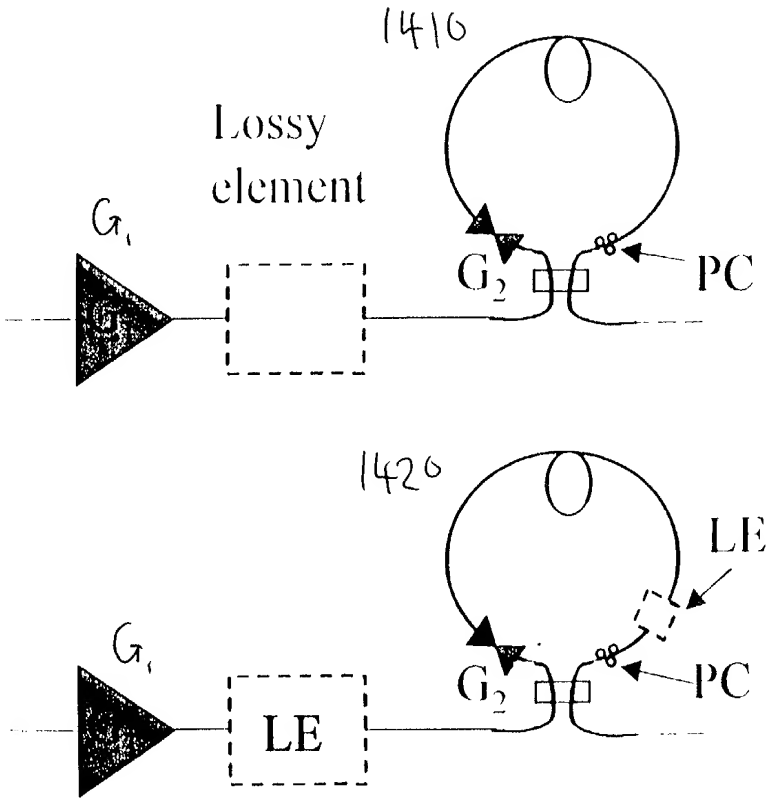


Fig. 14-(b)

1400

1430

P_{in} (dBm)	G_1 (dB)	G_2 (dB)	P_{out} (dBm)
-11	0	30	9.18
-11	5	25	9.17
-11	10	20	9.16
-11	15	15	9.10

Fig. 14-(c)

1500

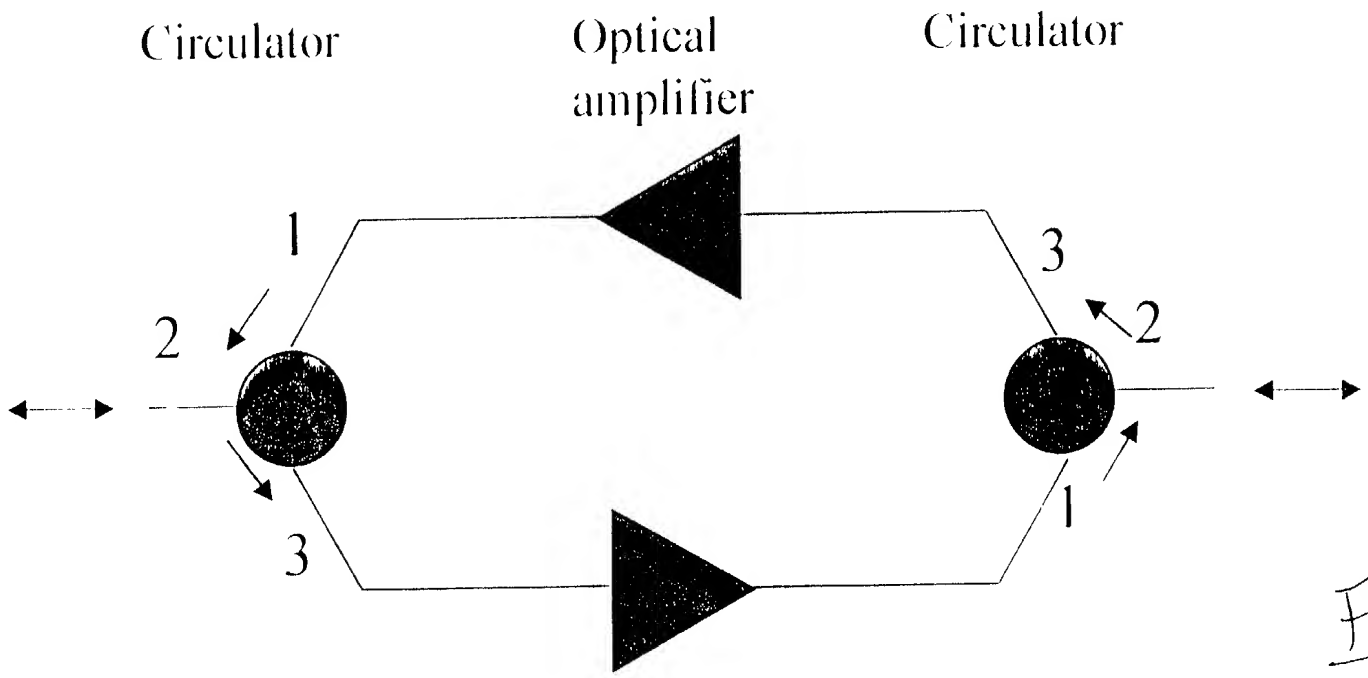


Fig. 15

1600

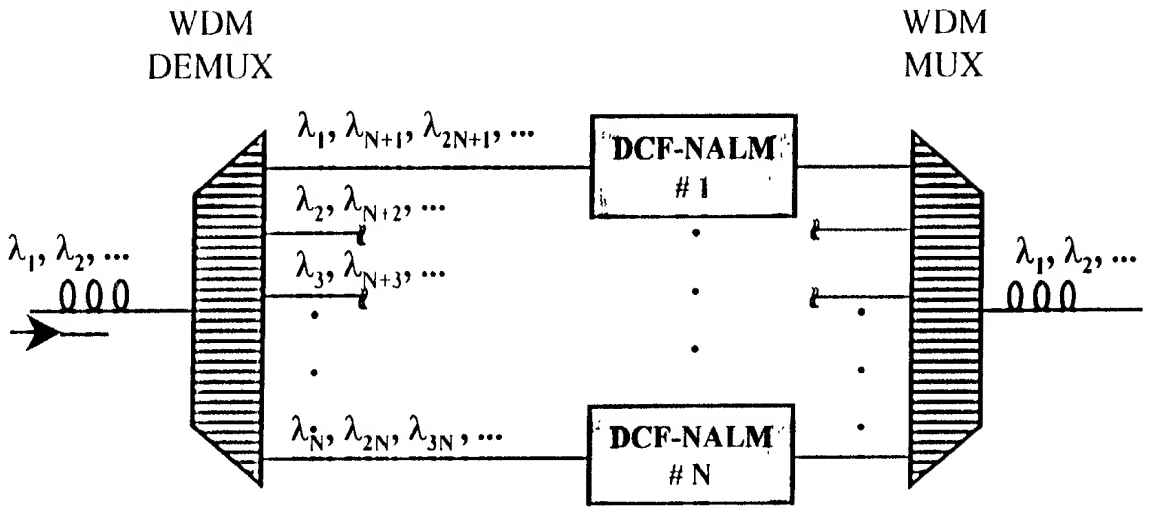


Fig. 16

1700

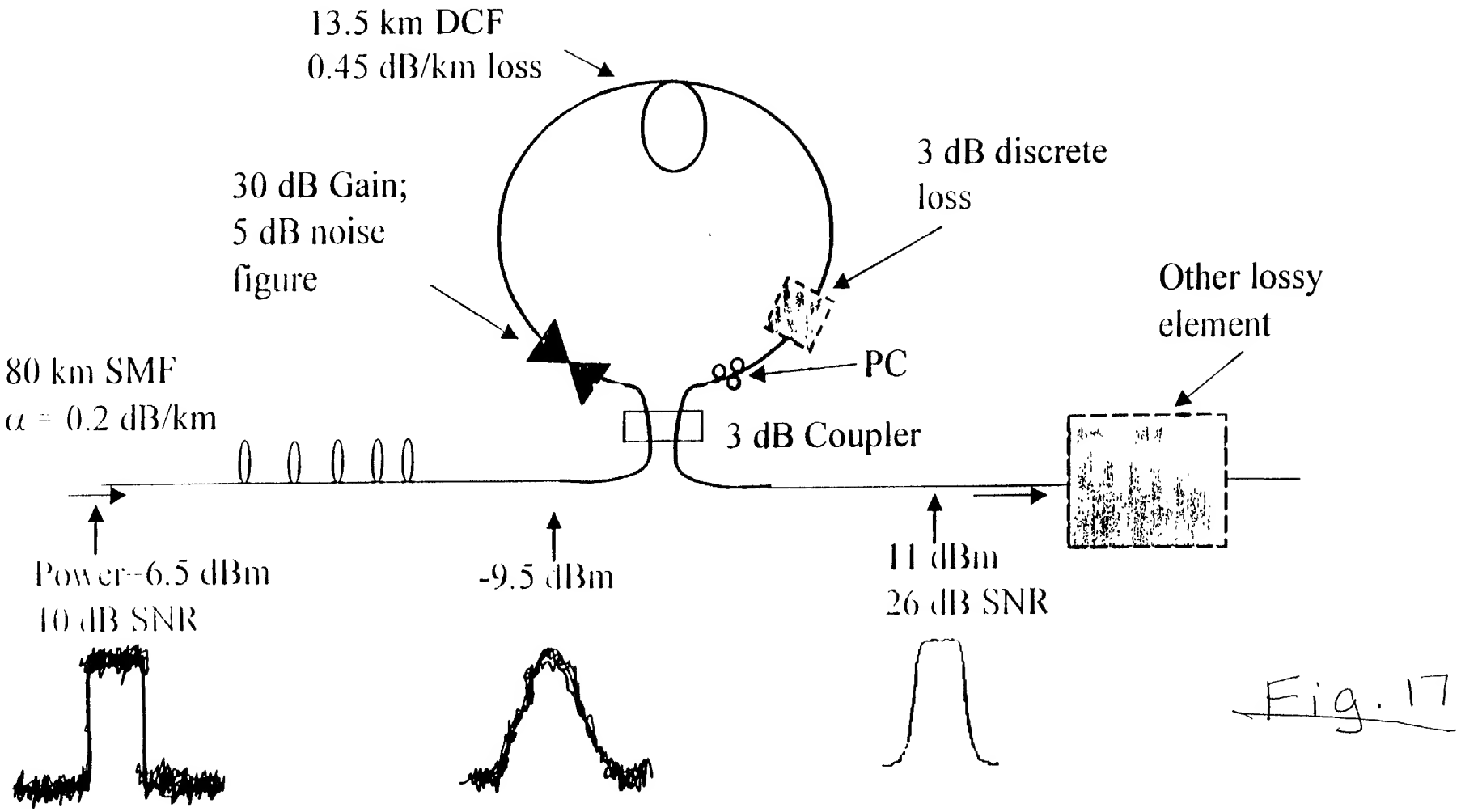
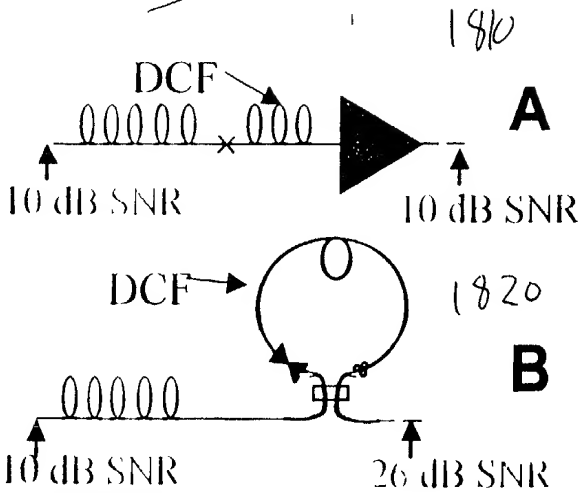


Fig. 17

Fig. 18(a)



Assumptions:

- 10 dB input SNR (5 GHz bandwidth)
- 5 dB amplifier NF

Results:

- 16 dB improvement in SNR

Fig 18(b)

1800

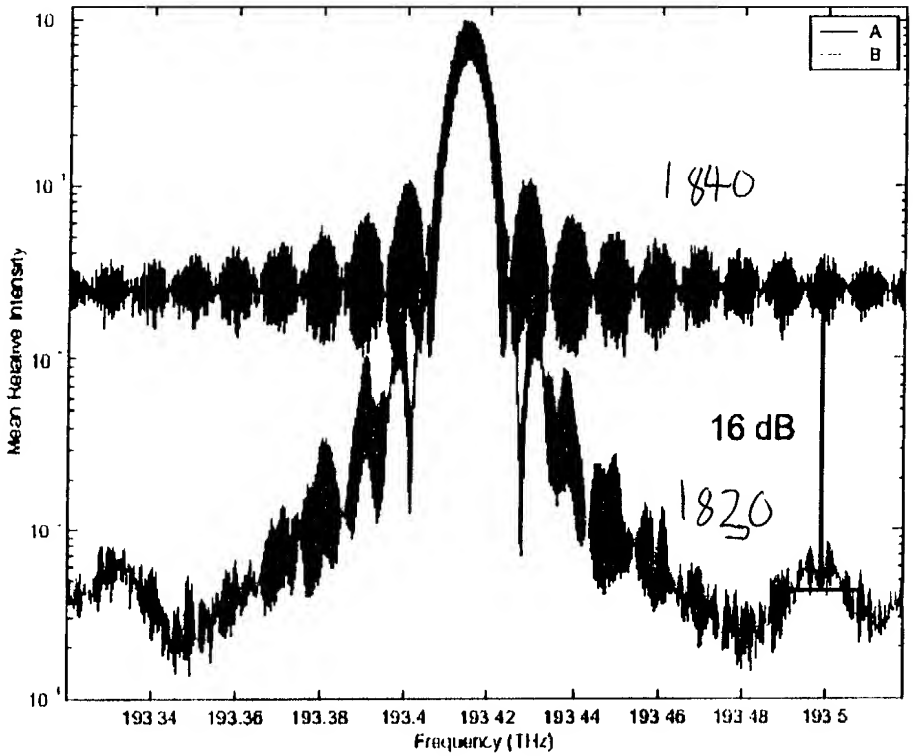


Fig. 18(c)

1900

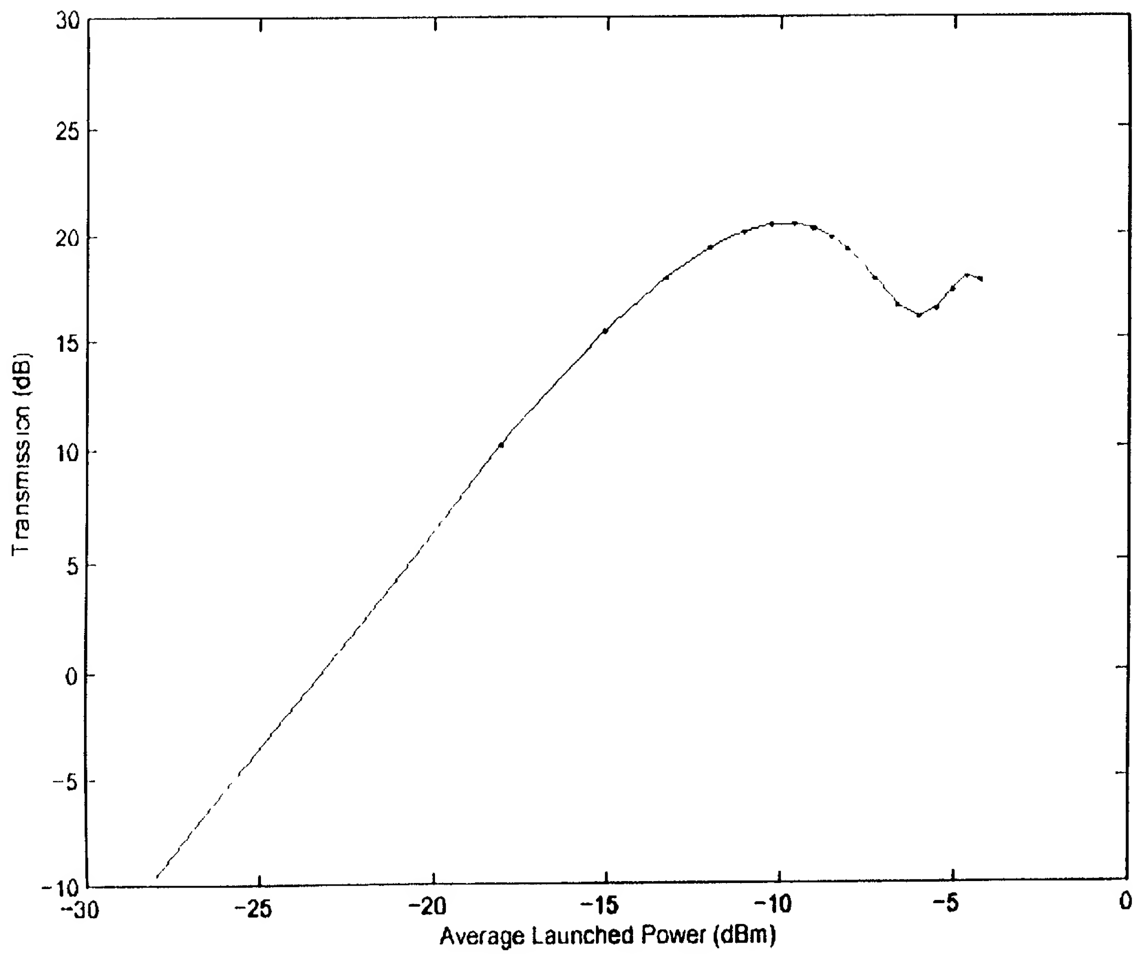

Transmission (dB)
30
25
20
15
10
5
0
-5
-10
-30
-25
-20
-15
-10
-5
0
Average Launched Power (dBm)

Fig. 19

2000

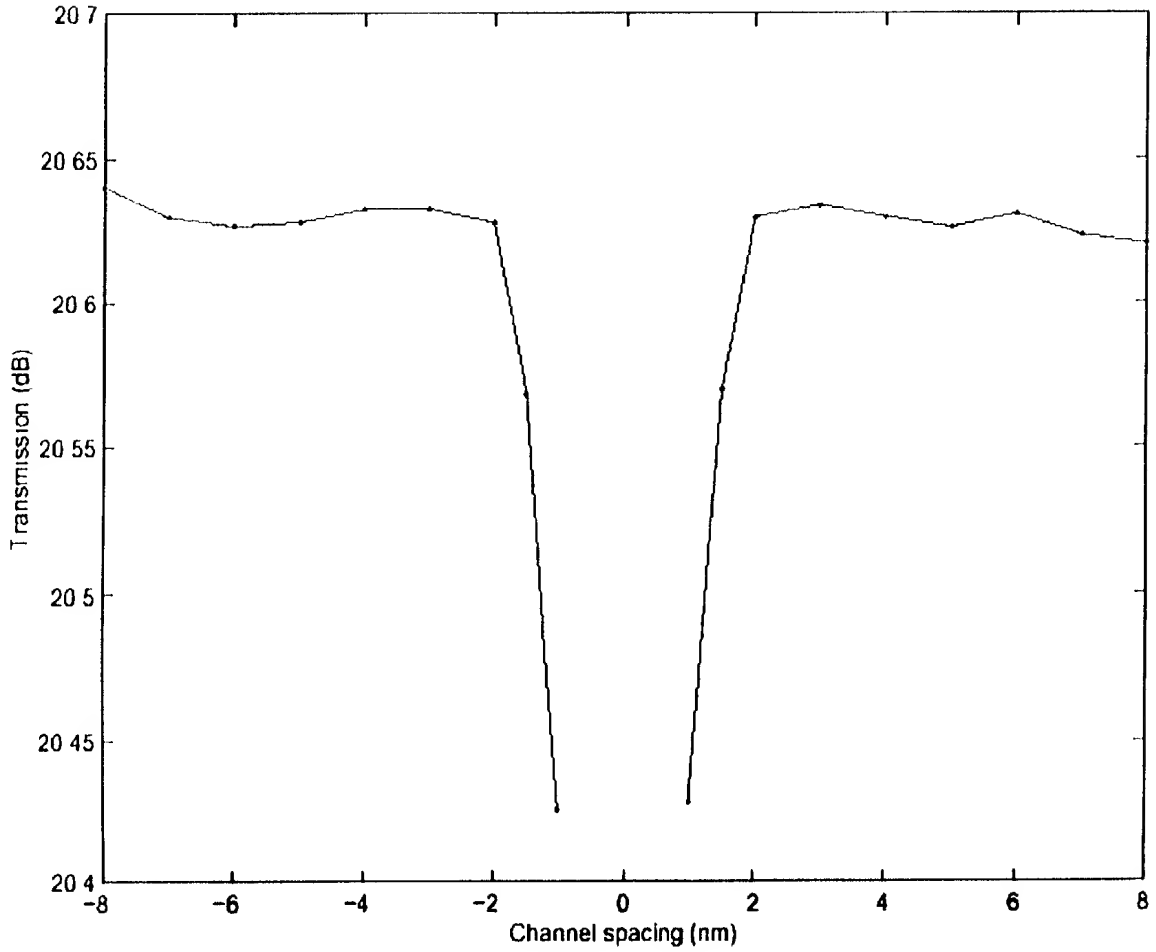


Fig. 20

Transmission (dB)
Average Launched Power (dBm)
1550 nm pulse only
1550 nm and 1562 nm pulses
2110
2120
2160

Fig. 21